RADARSAT-1 Operational Applications

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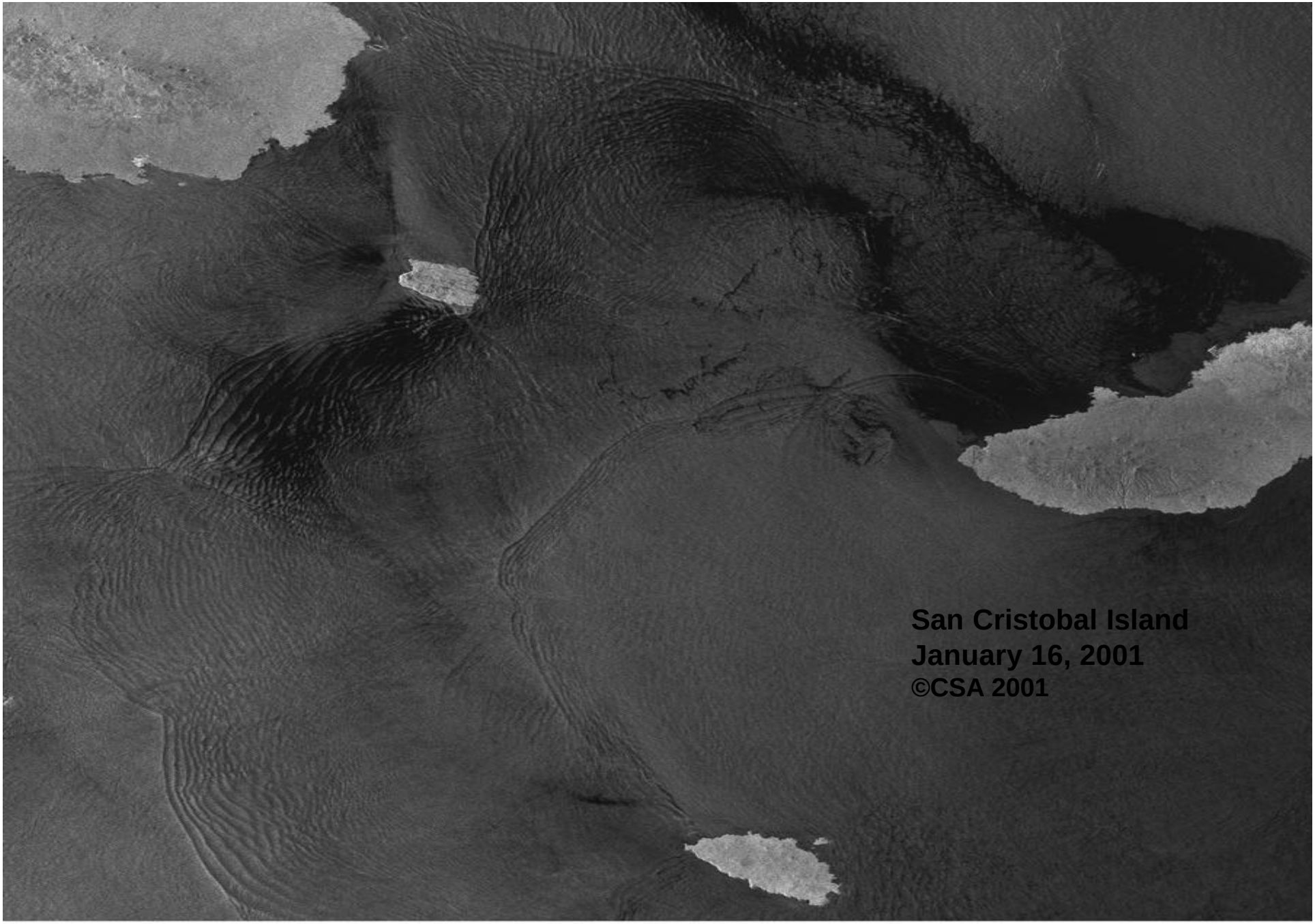
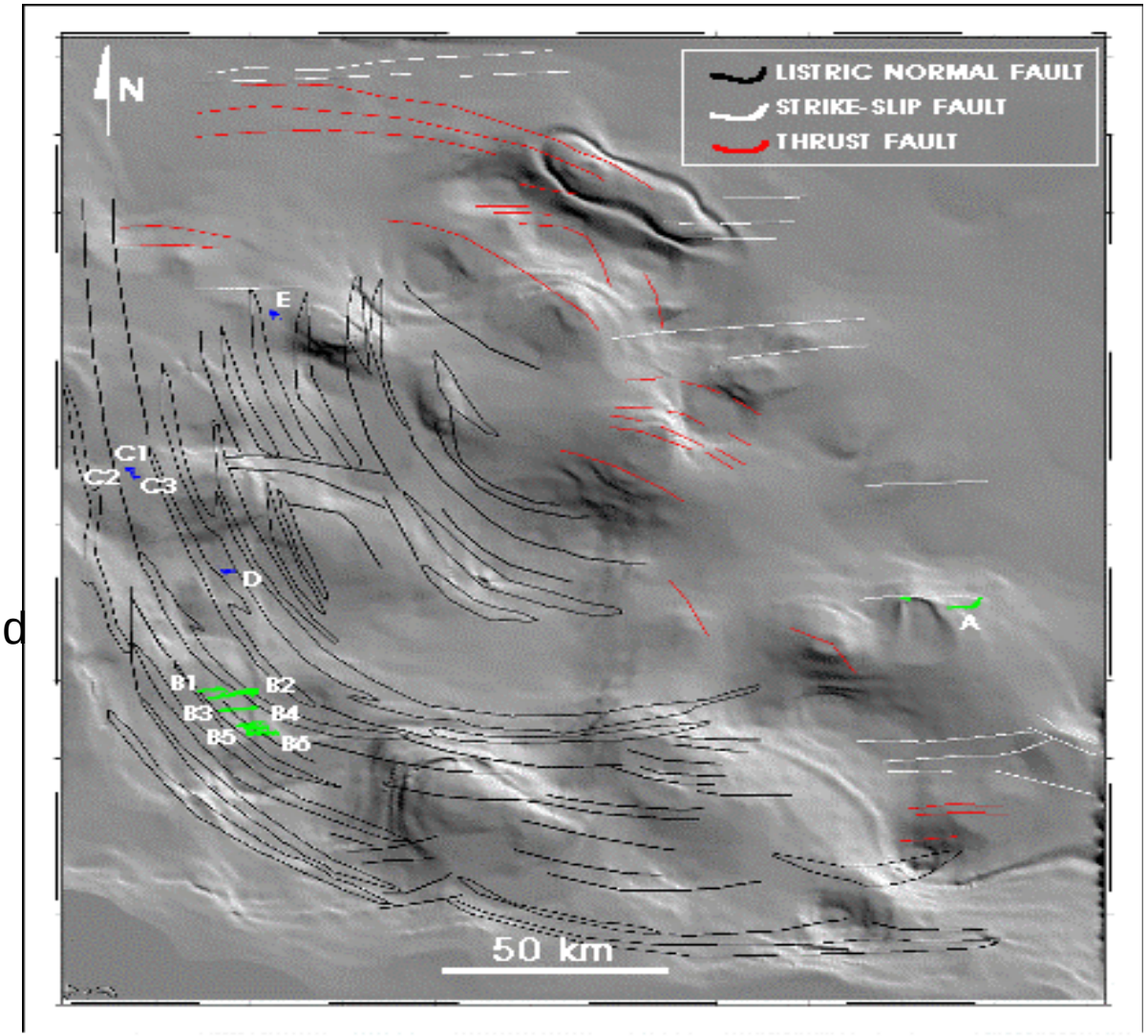
Outline

- Offshore Exploration
- Mapping
- Coastal Fisheries Surveillance
- Forestry
- Agriculture
- Flooding


San Cristobal Island
January 16, 2001
©CSA 2001
1:200 000 Scale
Kilometres 10 0 10 20
Miles 10 0 10

Offshore Exploration
Oil Seep Mapping

- Water depths:
  - A ~1500 m
  - B-D ~95 m
  - E ~600 m
- ScanSAR Narrow image integrated with seismic and bathymetric data.
- World wide opportunities



After Miranda, Bentz, Beisl, Lorenzzetti, Araújo, Silva, RSI ADRO 132

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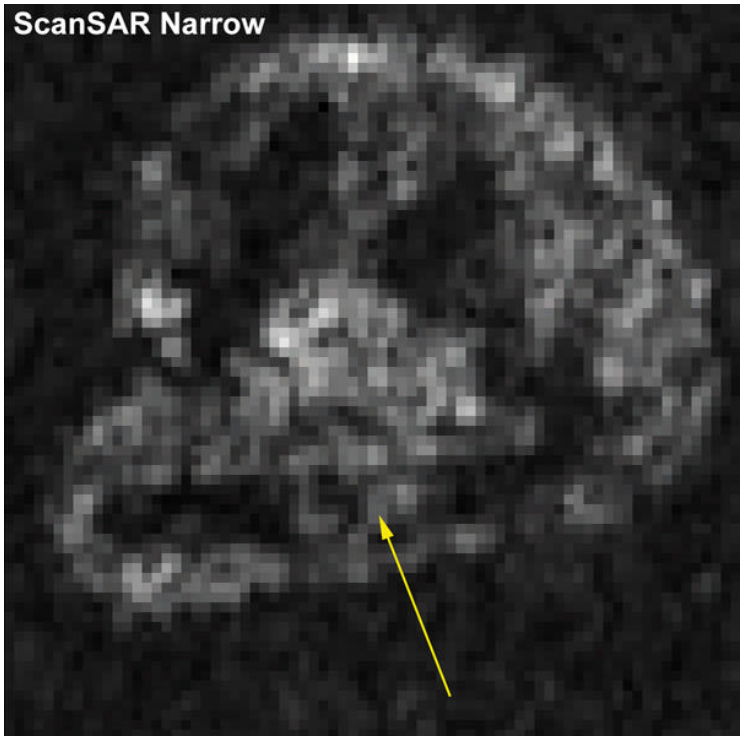
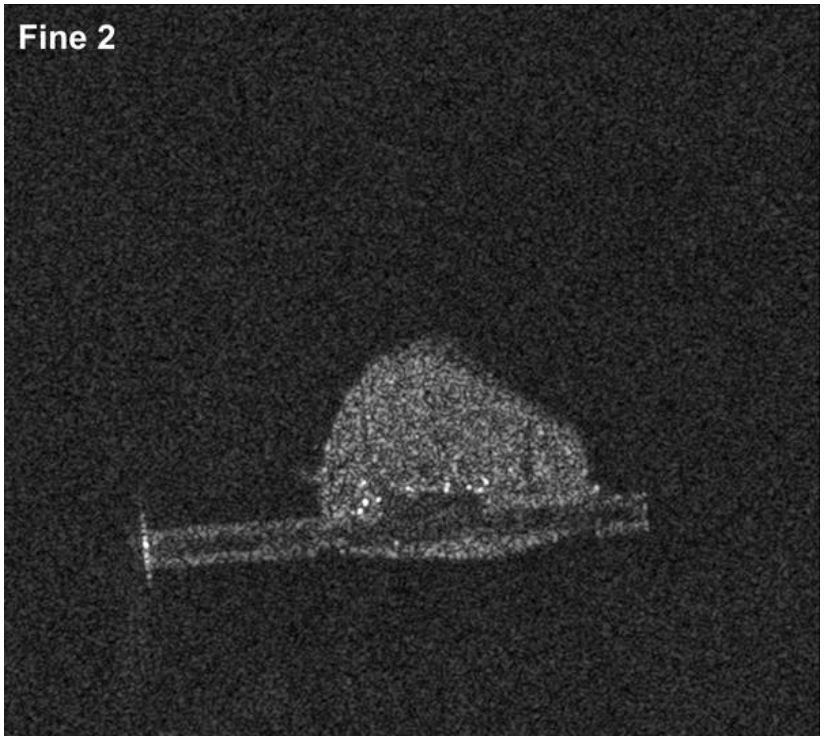
Mapping
Change Detection, Spratly Islands



Acquired January 11, 1998, arrow indicates features related to construction of a runway.



Acquired June 2, 1998 showing a small portion of the same island; the complete runway is clearly visible.

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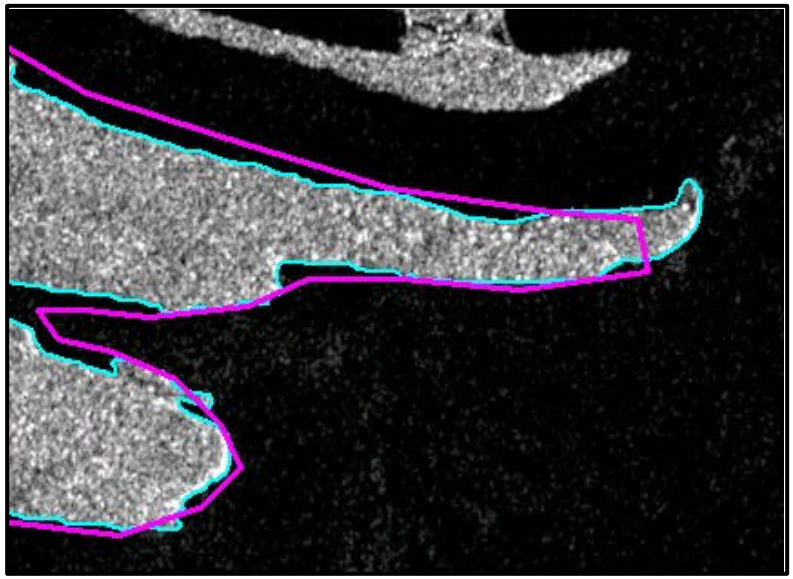
Coastline Mapping

- Challenge
  - Indonesian coastline over 81,000 km long
  - Existing maps are inaccurate & outdated
  - Cost of update is of concern
- RADARSAT Solution
  - Land-water interface easily defined
  - All weather, day-night imaging
  - Low cost coverage of large area



Existing map coastline

RADARSAT coastline

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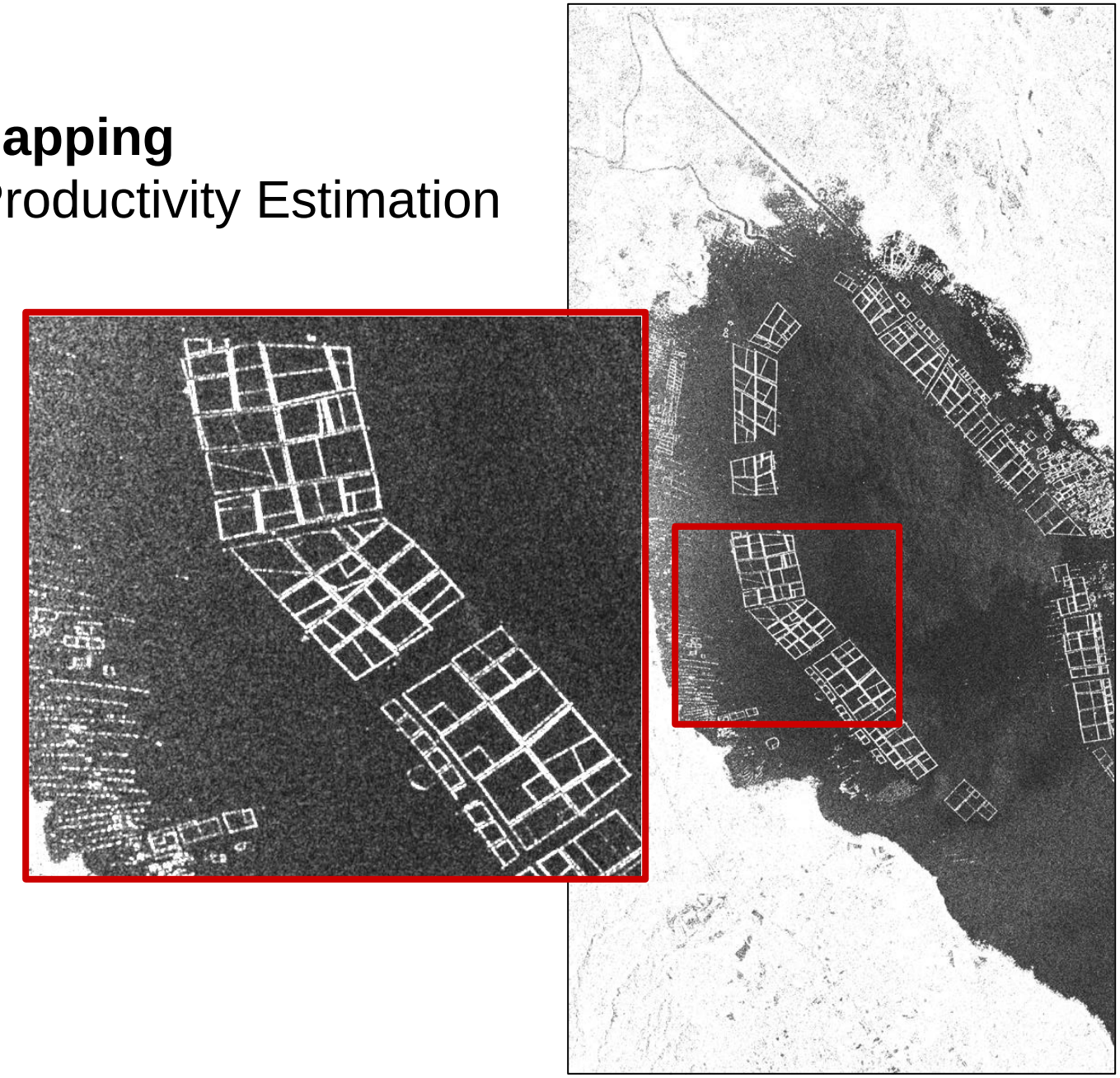
Aquaculture Mapping
Inventory and Productivity Estimation



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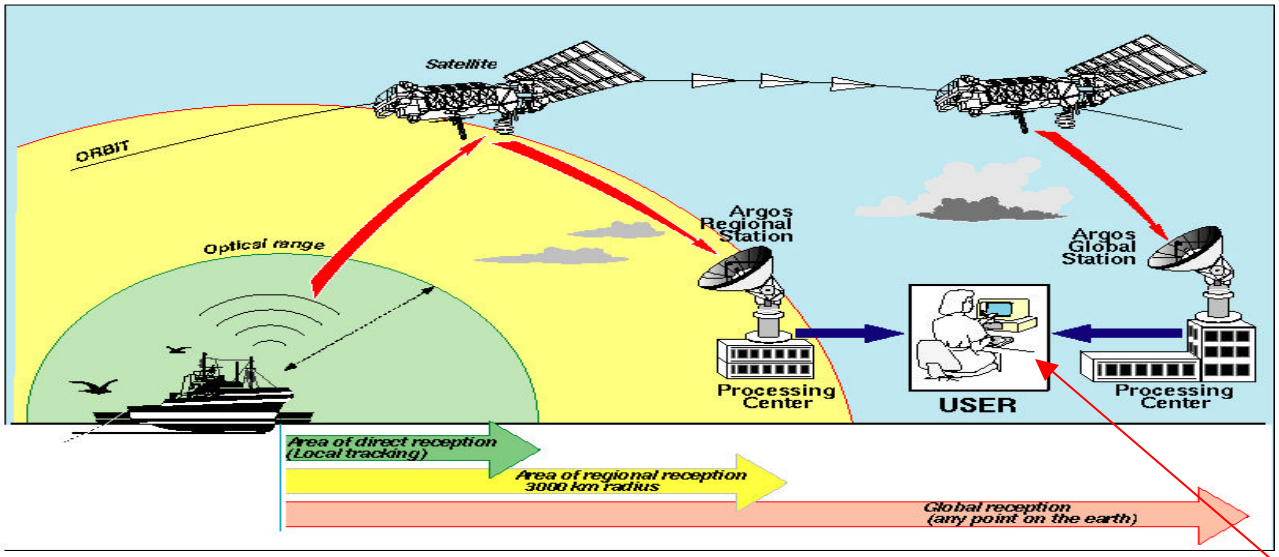
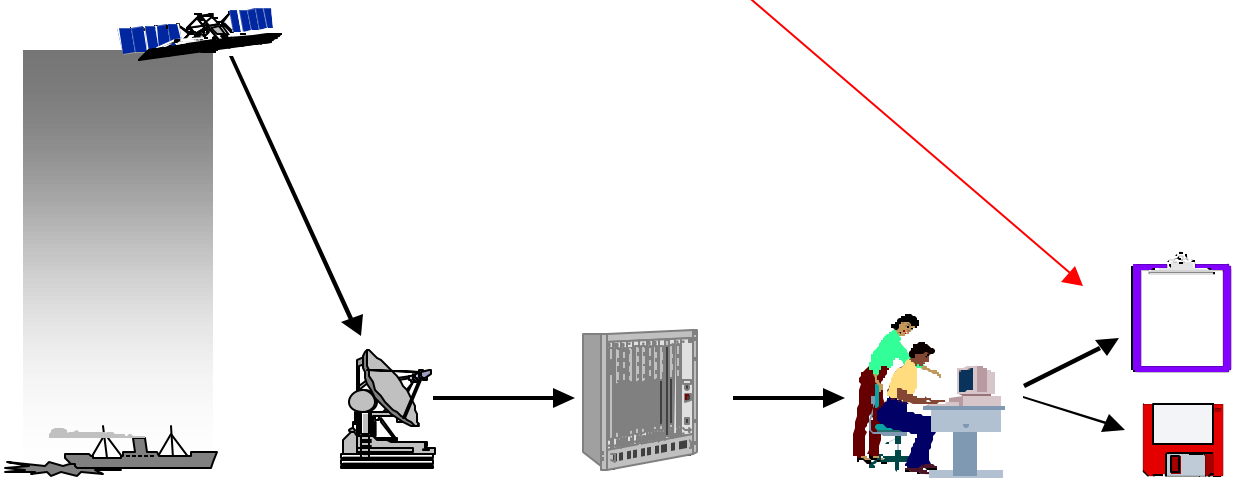
Concept of Operations



Vessel Management System

Imaging Radar



	Acquire	*Downlink*	*Process*	*Analyze*	*Report*
Time to complete task		2 hours	1 hour	1 hour	0.5 hour
Cumulative time		2 hours	3 hours	4 hours	4.5 hours

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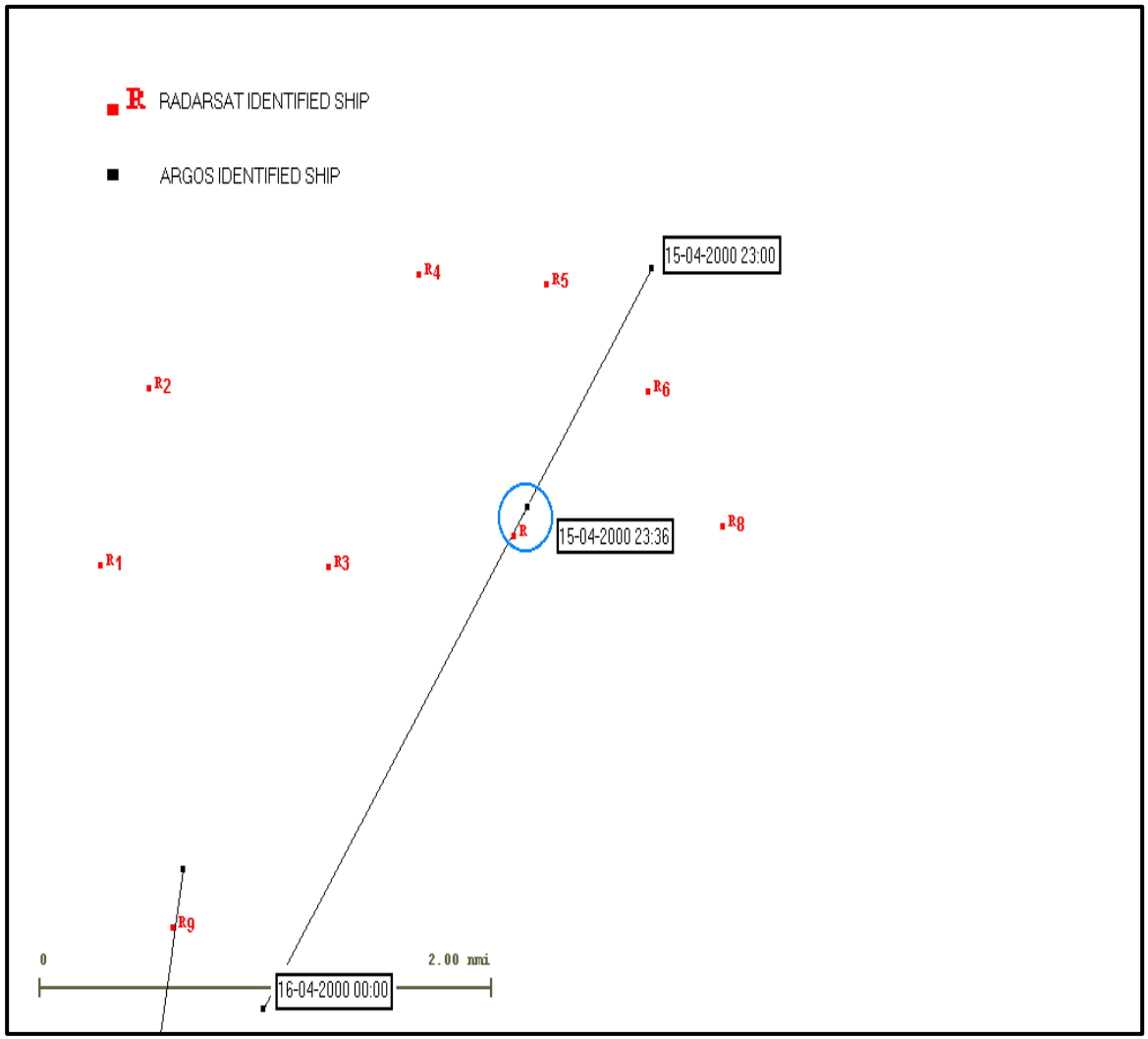
RADARSAT Detected vs. VMS Tracked



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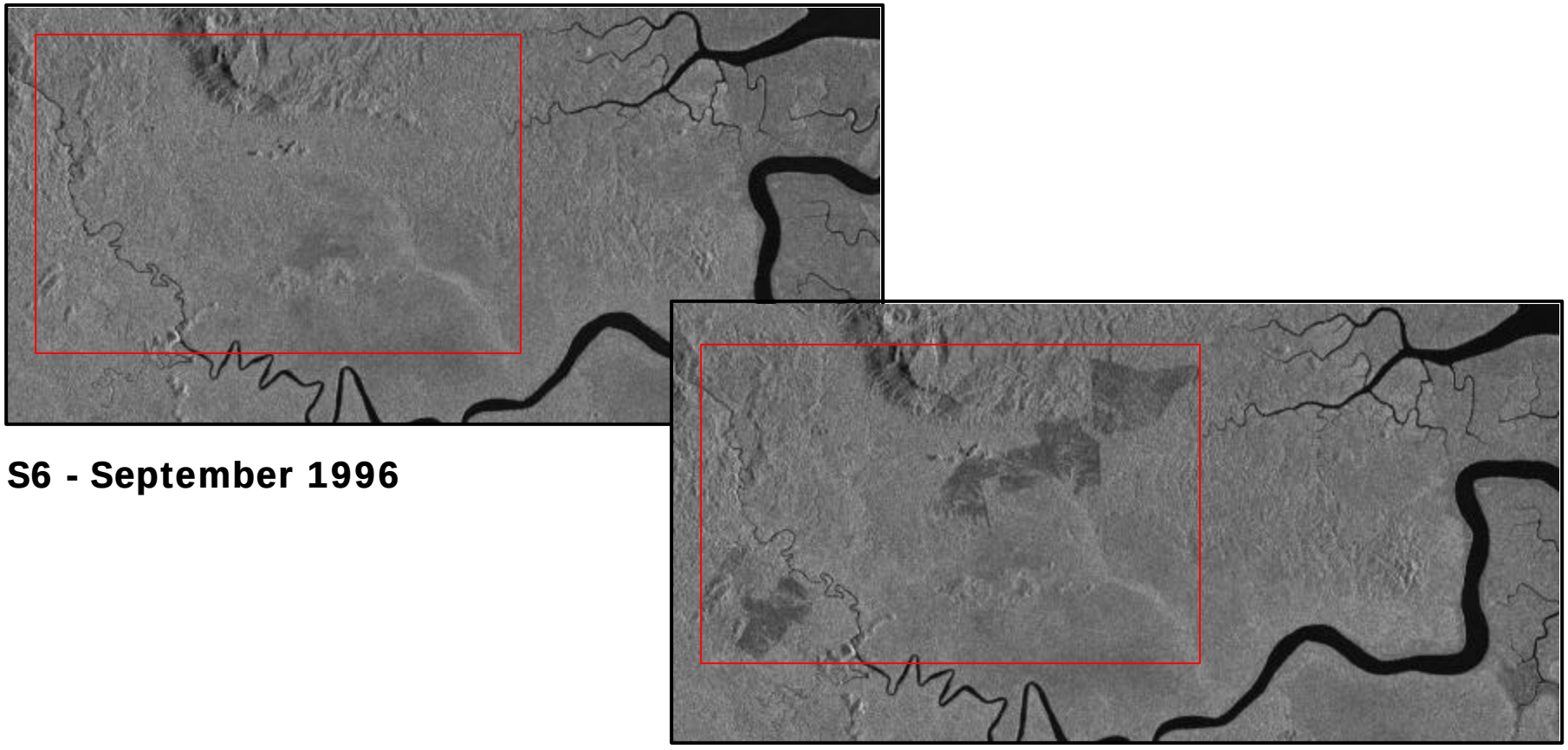
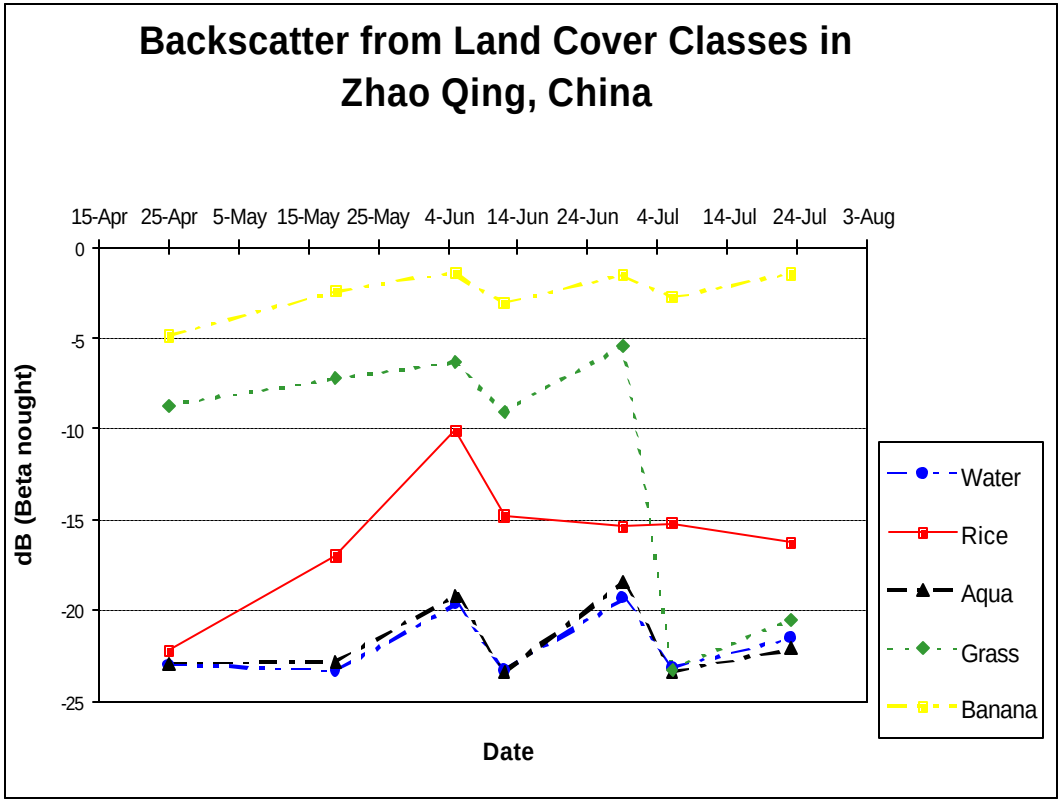
Mapping Cut-blocks in Kalimantan, Indonesia



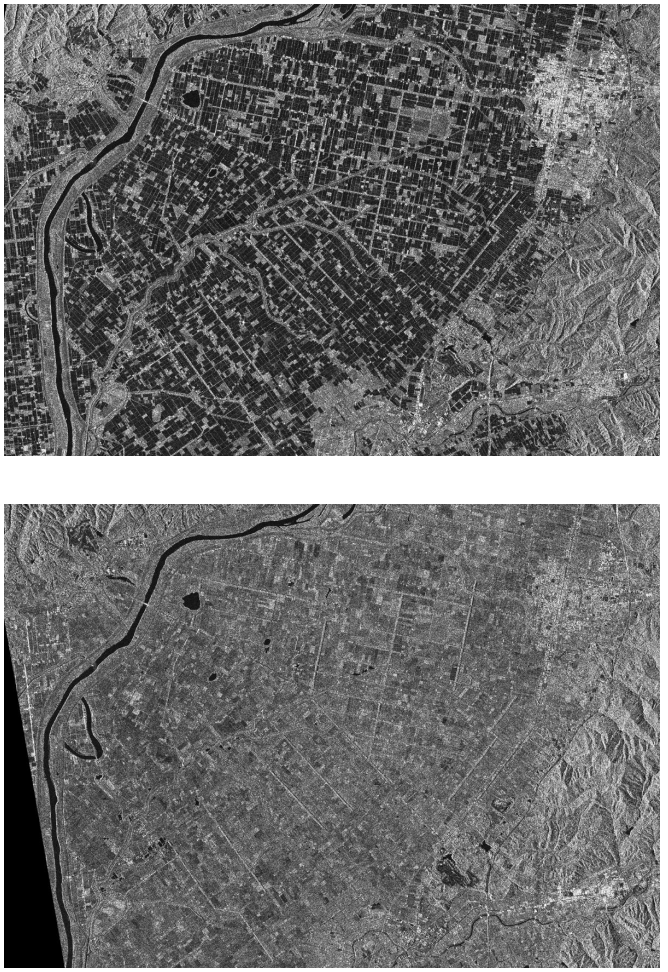
S6 - September 1996

S6 - January 1998

Rice Crop Monitoring



(after Ross et al., 1998)



Hokkaido, Japan
Early season rice (top)
Mid season rice (bottom)

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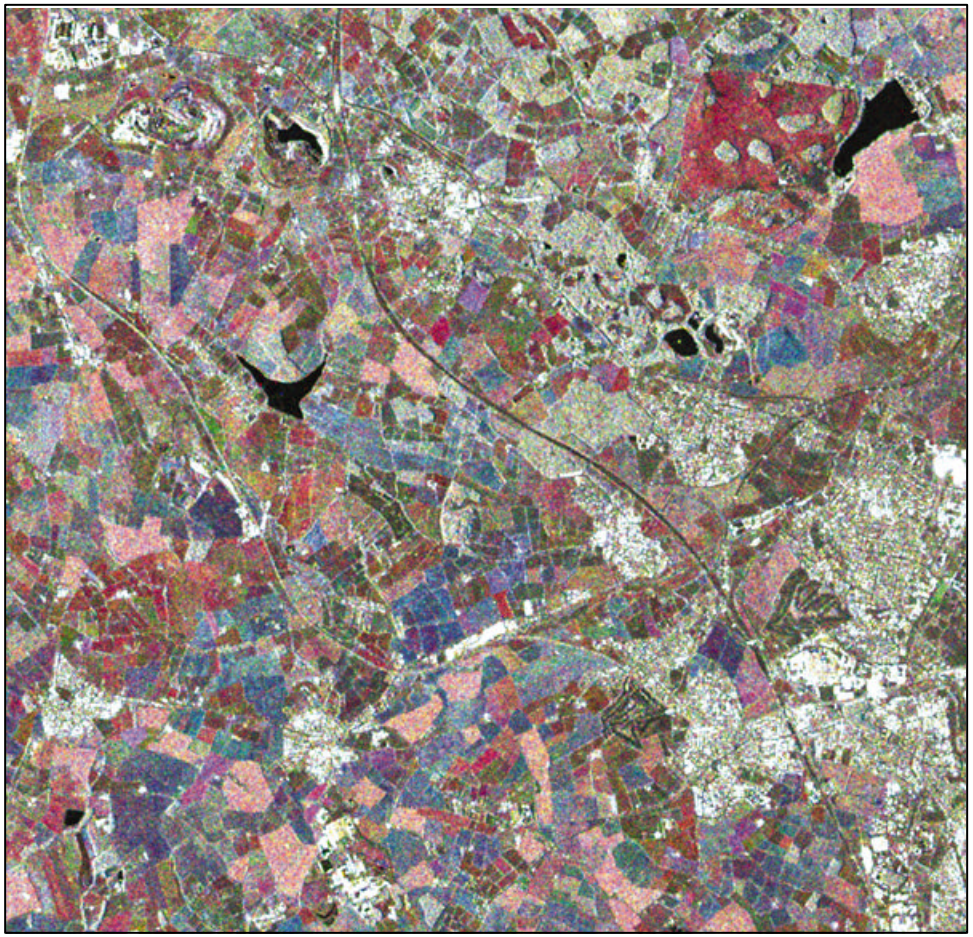
FEOGA

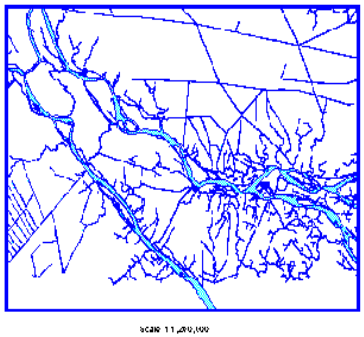
European Agriculture Guidance & Guarantee Fund

- Administered by the EC to combat fraud and control agriculture subsidies under the Common Agriculture Policy.
- 2001 monitoring plan identified 49 sites, with RADARSAT data acquired at pre-determined times based on crop type.
- Subsidies paid to farmers for growing certain crops.

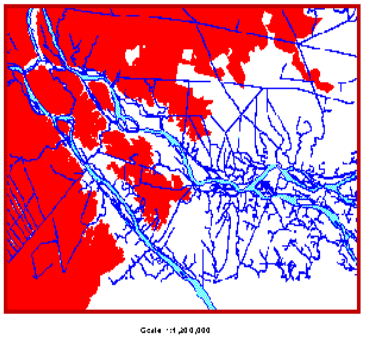


RADARSAT Multitemporal Composite - Leicester, UK

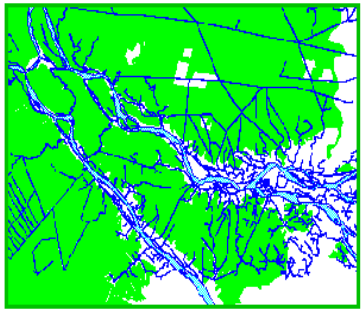
Flood Mapping
Mekong Delta, Vietnam



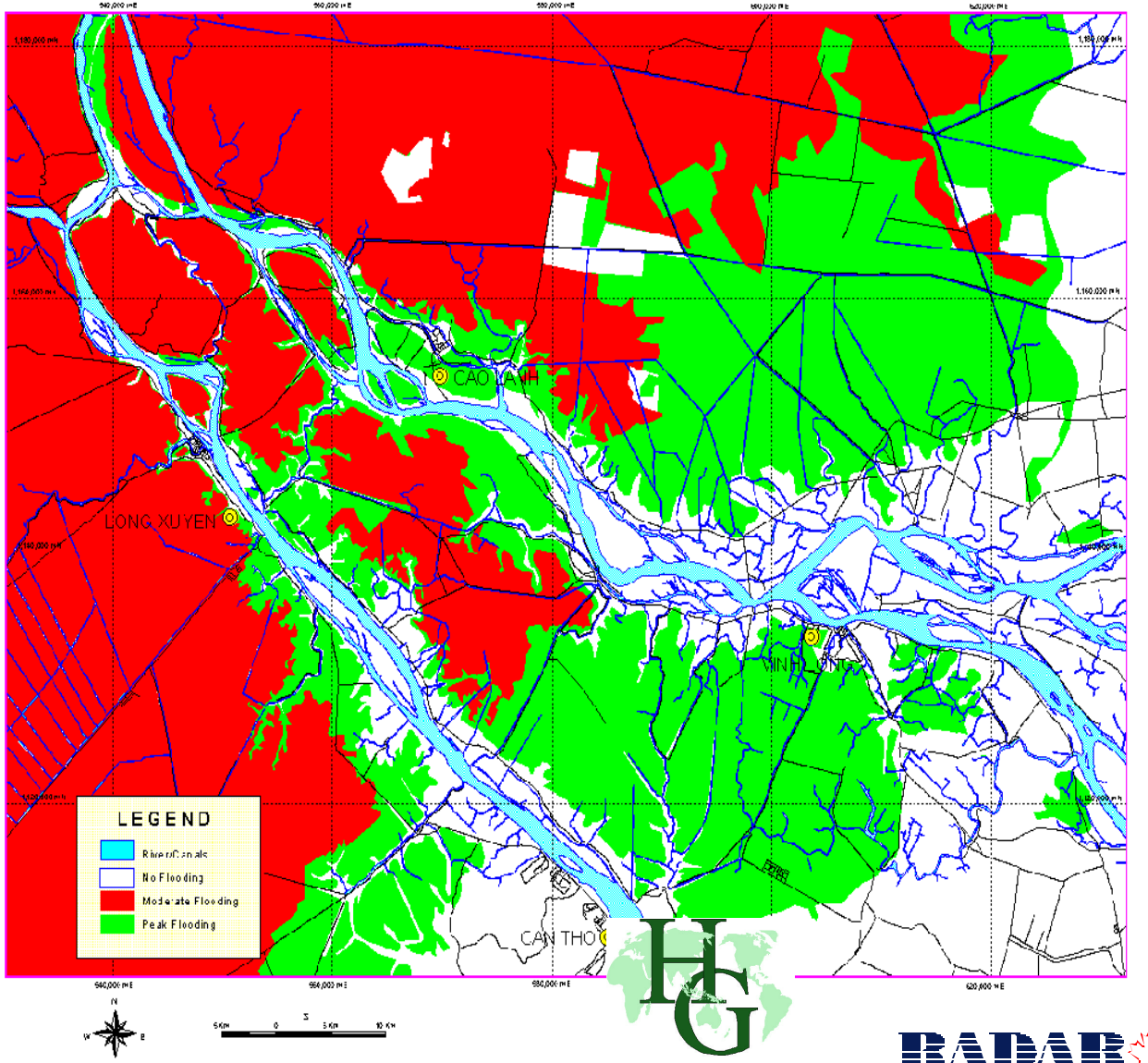
No Flooding



Medium Flood



Peak Flood



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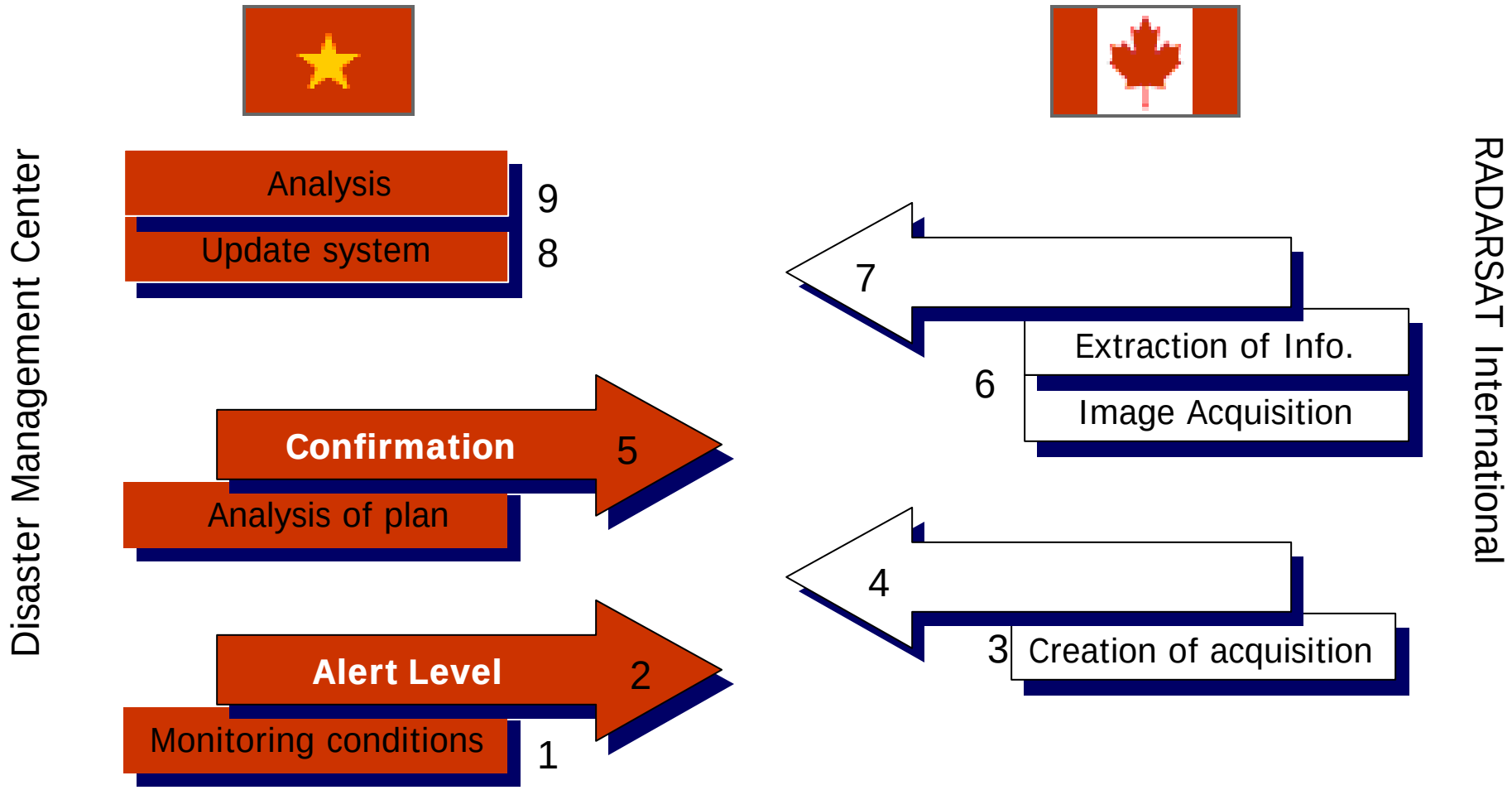
RADARSAT Flood Information System
Vietnam - Canada Joint Project



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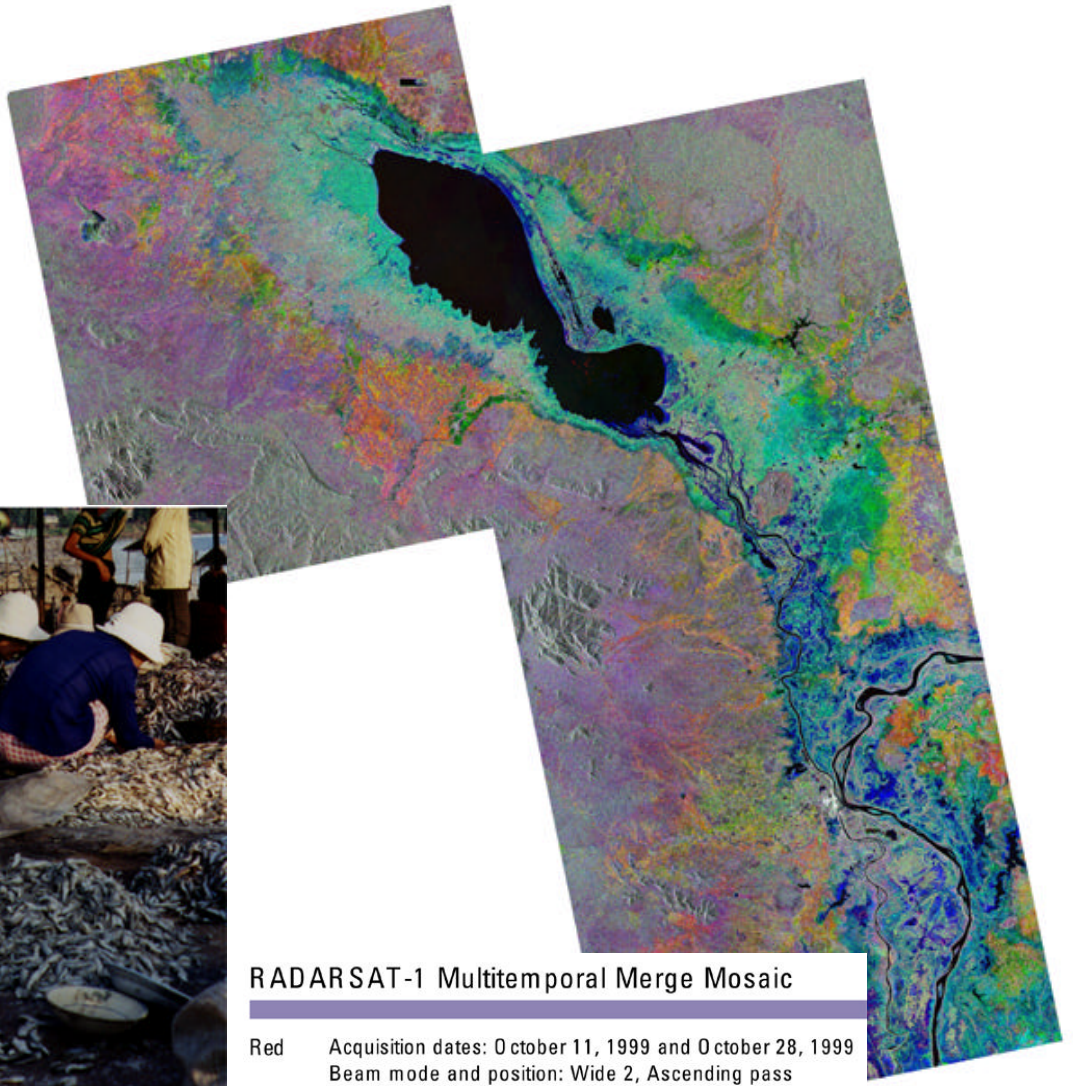
Fisheries Habitat Mapping

Tonle Sap, Cambodia



RADARSAT-1 Multitemporal Merge Mosaic

Red	Acquisition dates: October 11, 1999 and October 28, 1999 Beam mode and position: Wide 2, Ascending pass
Green	Acquisition dates: January 15, 2000 and February 1, 2000 Beam mode and position: Wide 2, Ascending pass
Blue	Acquisition dates: May 5, 1999 and June 6, 1999 Beam mode and position: Wide 2, Ascending pass

On the banks of the Tonle Sap River, near Phnom penh, thousands of tons of fish are processed annually to make prahok (fish paste), a national delicacy in Cambodia.

Photo courtesy of HCL.

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Concluding Comments

- Good understanding of RADARSAT-1 capabilities and limitations.
- Moving toward the delivery of information solutions rather than data.
- Data integration is required to fully satisfy the spatial and temporal requirements for most information solution needs.
- Expect continuity of RADARSAT-1 applications and new opportunities when RADARSAT-2 data becomes available.